AMI-400TPx

Cost-Effective, Automated Chemisorption Analysis

INTRODUCTION

"Complete Chemisorption & Reactor Solutions—Precision Without the Premium"

Figure 1. ***AMI-400TPx*** *chemisorption analyzer*

STANDARD FUNCTIONS:

- **Temperature-programmed desorption (TPD)**
- **Temperature-programmed reduction/oxidation (TPR/O)**
- **Temperature-programmed surface reaction (TPSR)**

Options:

- **Pulse chemisorption**
- **Sub-ambient module**
- **Mass spectrometer**
- **Gas chromatograph**

The **AMI-400TPx** sets a new benchmark in fully automated chemisorption analysis, combining advanced capabilities with outstanding economic efficiency. Designed with unattended operation at its core, it addresses the high standards and evolving needs of catalyst researchers while minimizing operating costs and maximizing laboratory productivity.

This space-saving system is equipped with robust control components and advanced data processing software, enabling the delivery of accurate kinetic parameters critical for catalyst characterization. Its compact, cost-effective design makes it an ideal choice for labs with limited space or budget, without compromising analytical performance.

The **AMI-400TPx** comes standard with temperature-programmed desorption (TPD), temperature-programmed reduction and oxidation (TPR/O), and temperature-programmed surface reaction (TPSR) capabilities. For laboratories with more advanced requirements, optional features include pulse chemisorption, a sub-ambient temperature module, a mass spectrometer for evolved gas analysis, and a gas chromatograph for detailed component separation and quantification. This flexibility allows users to tailor the system to their specific research goals while maintaining a practical, affordable approach to catalyst evaluation.

SOFTWARE

One of the key advantages of the **AMI-400TPx** is its ability to operate without constant operator supervision, making it an ideal solution for busy research environments. Once the experiment is set up and running, the system performs fully automated sequences, freeing up valuable time for researchers to focus on data analysis, planning, or other laboratory activities.

The instrument is designed to run on a standard Windows-based computer, providing a familiar and user-friendly interface. It also supports Internet connectivity, enabling remote monitoring and control when needed. This flexibility ensures that the **AMI-400TPx** can be easily integrated into the existing digital infrastructure of any laboratory.

Moreover, the same computer used to control the instrument can be utilized to manage additional laboratory tasks, streamlining operations and reducing the need for multiple workstations. This combination of automation, connectivity, and multitasking capability makes the **AMI-400TPx** a powerful and practical tool for modern catalyst research laboratories.

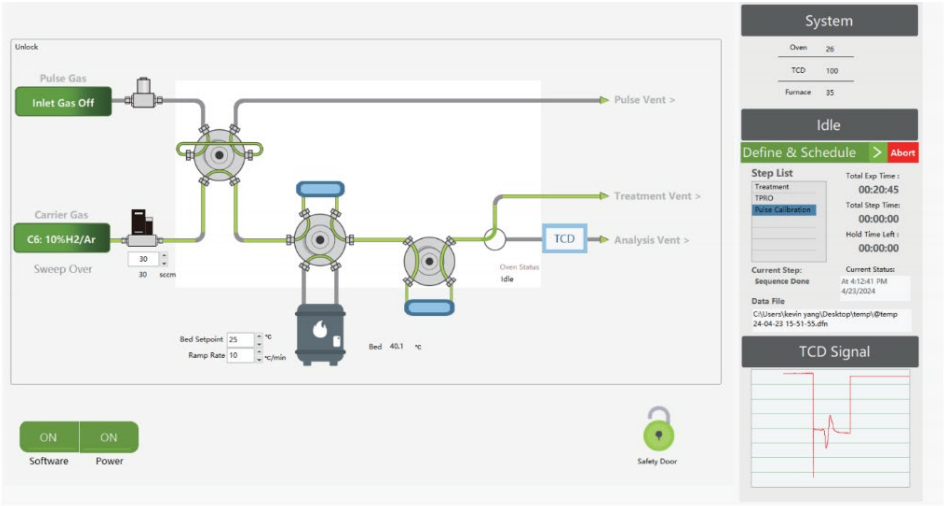

Figure 2. ***AMI-400TPx*** *operation interface*

The **AMI-400TPx** features a user-friendly interface and intuitive layout that simplifies experimental design. Users need only to input the changeable process variables, while the system automatically handles the rest—making setup quick and error-free. Flexible selection or customization of methods such as TPD, TPO, TPR, TPSR, and pulse calibration is supported, with the ability to configure up to 99 fully automated programs. A complete experiment can be set up in just a few minutes, streamlining workflows and boosting lab productivity.

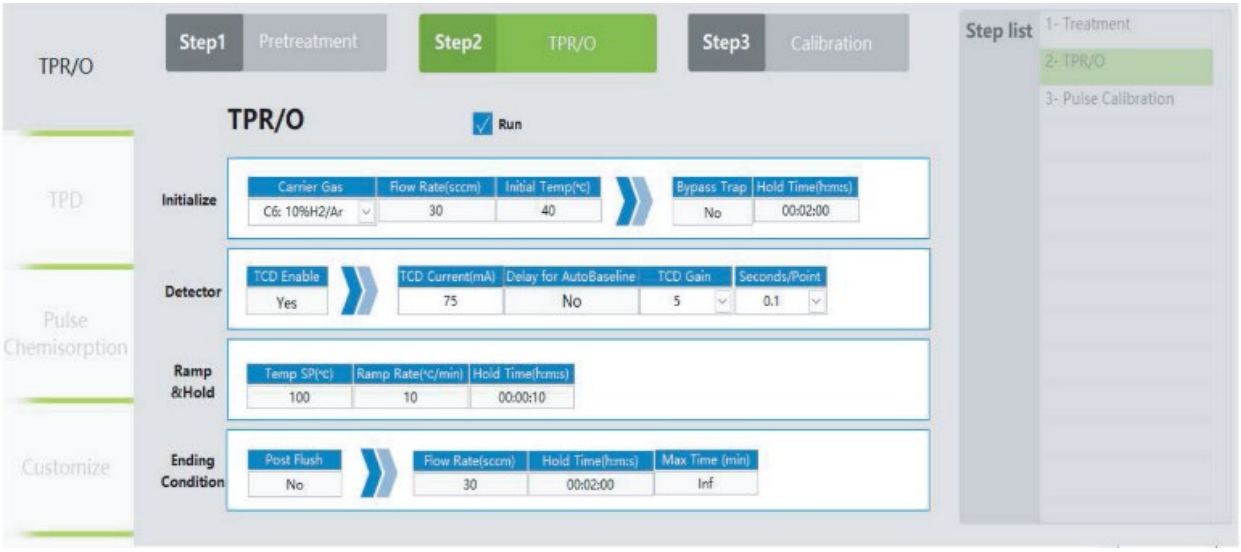

*Figure 3. **AMI-400TPx** experiment setting interface*

The **AMI-400TPx** is equipped with a multi-layered safety system that combines hardware, firmware, and software safeguards to ensure reliable and secure operation. On the hardware side, a temperature safety switch provides immediate protection against furnace overheating. Built-in firmware-level factory-set alarms offer an additional layer of control to prevent unsafe operating conditions. At the software level, an intuitive interface allows users to configure a wide range of safety protection programs, including automated alarms, manual valve control, and real-time input of gas flow and temperature settings. Together, these features deliver robust, comprehensive protection throughout every stage of operation.

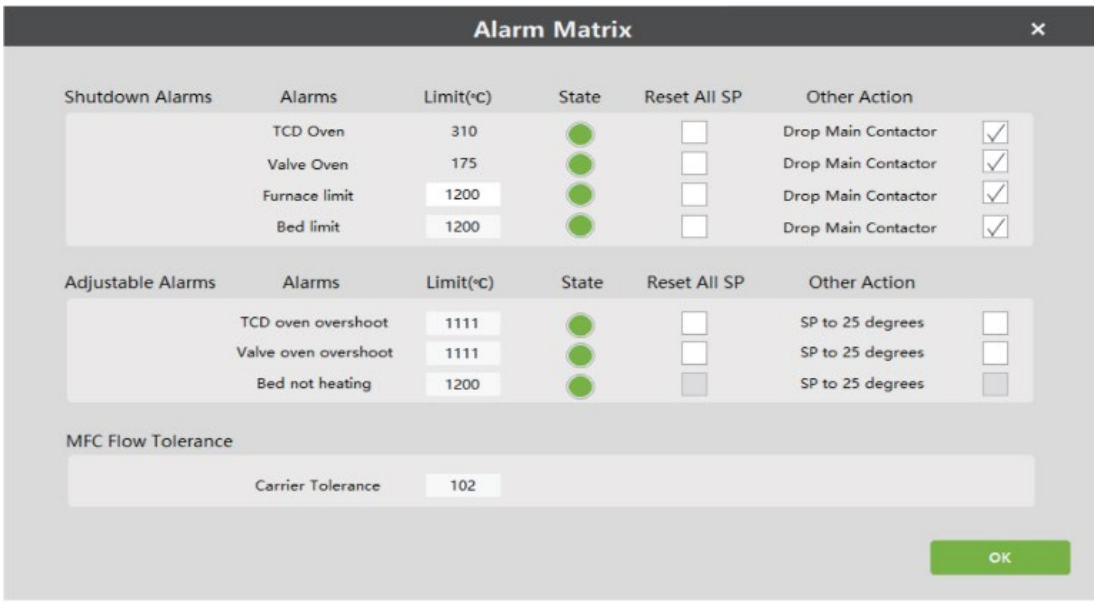

*Figure 4. **AMI-400TPx** alarms setting interface*

TECHNICAL PARAMETERS

	AMI-400TPx
Number of Stations	1
Temperature range	RT-1200°C; -100°C (Optional) to 1100°C
Mass Flow Controller	1
Temperature Ramp Rates	0.1 - 50 ℃/min
Gas Inlets	6 analysis ports, 4 pulse ports (Optional)
Operating Pressure	Atmospheric pressure
Gas flow rate	2-100 sccm
Sample tube	Quartz U-shaped tube (6mm, 8mm, 10mm optional), bubble tube
TCD detector	Standard Tungsten Rhenium filaments, Room Temperature up to 200°C
Materials of Construction	Kalrez, 316 Stainless Steel
Seals	Viton, Buna-N, Kalrez, etc
Dimensions	L 17.0 in (43 cm) × W 25.2 in (64 cm) × H 24.5 in (62 cm), 136.7 lbs (62kg)
High Temperature Oven	80°C
Mass Spectrometer	Optional
FID	Optional